The Sociophonetics of Prosodic Contours on NEG in Three Language Communities: Teasing apart Sociolinguistic and Phonetic Influences on Speech

Chapter 5

The Sociophonetics of Prosodic Contours on *NEG* in Three Language Communities: Teasing apart Sociolinguistic and Phonetic Influences on Speech

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1. Introduction

Negatives provide cognitively critical information and are also interactively significant. The present study compares the prosodic realization of negatives in three languages, and in two social settings for each language. The study will provide evidence for three loci of prosodic variation in negatives as they are used in amicable social interactions and in informative newscasts in American English, Latin American Spanish,[2] and Japanese. Comparative evidence from adversarial interactions will be cited where relevant.

1.1 Language

Each of these three languages shows unique patterns for how prominence is acoustically accomplished (Pierrehumbert and Beckman 1988; Hirst and di Cristo 1998; Grabe et al. 2003; Jun 2005). Each has its own default negative morphology with a given default syntactic position, and it is that most common form of negation that will be studied here. Rather than refer to each specific lexical item in this discussion, each language's 'default' lexical negative will be referred to as *NEG***.**

1.2 Social situation

Within a given linguistic community, prosody varies radically with the social situation. This chapter will discuss parallel results for the three languages in

only two situations: friendly phone calls will be compared with recordings of newscasts. Analyses of other situations can be found elsewhere (e.g., Yaeger-Dror 2002a, b; Yaeger-Dror, Hall-Lew, and Deckert 2002, 2003; Takano 2002, 2008; Kato 2004).

1.3 Culture

In different societies, prosodic prominence is manipulated in various ways, even in apparently similar social situations. Some of these dissimilarieties are purely linguistic (e.g., Grabe et al. 2003; Mennen 2006; Ladd et al. 2009), while others appear to be culturally variable and may be dependent on societal norms of power and solidarity (Brown and Gilman 1960; Maclemore 1991; Watts 2003; Locher 2004). The present study argues that neither source of variation should be ignored.

This study will permit cross-cultural and cross-linguistic comparisons, showing that there are nontrivial language-specific and culture-specific components. Cognitive, linguistic, situational, and cultural factors must all be incorporated as variables for any analysis of the prosody of negation strategies.

2. Review of the relevant literature

2.1 Parameters of prosodic variation

There are three primary phonetic parameters of prosodic variation which can be mined for sociophonetic detail: loudness, measured acoustically as amplitude (in decibals: dB), pitch variation, measured acoustically from a speaker's fundamental frequency, or F_0 (in HZ), and duration (where the duration of the word or its linguistic subcomponents can be compared with the duration of nearby equivalent tokens and is measurable in milliseconds—or msec). Figure 5.1 shows that all three are measurable using commonly available software:[3] F_0 is found on the lowest vertical axis"Pitchtrack" and "Amplitude" has its own vertical axis immediately above it; "Duration" is measured along the horizontal axis. Each of these parameters is manipulated to varying degrees in different languages. Fortunately, in all three languages investigated here, the primary perceptual and productive parameter for prominence is fundamental frequency (F_0) and is measurable from the pitchtrack itself (Fagyal and Yaeger, forthcoming).

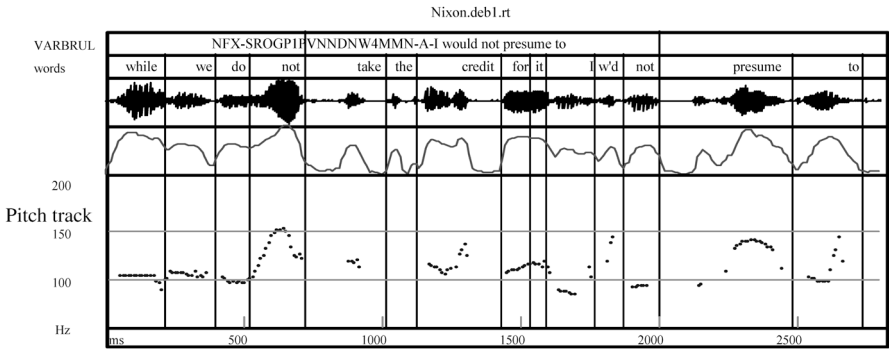

Figure 5.1 Examples of Pitch (F_0), amplitude, and duration measures.

Experimental studies have shown that for speakers of Standard American English, amplitude generally appears to co-vary with fundamental frequency; duration appears to be correlated with both sentential position and focal prominence. While amplitude increments can be 'perceived' as 'accenting' a word even in the absence of a fundamental frequency change, this is not common even in a carefully read corpus (Cutler, Dahan, van Donselaar 1997).

In Japanese (as in English), experimental studies demonstrate that fundamental frequency plays the primary role in both production and perception of focal prominence (Pierrehumbert and Beckman 1988; Venditti 2005), whereas amplitude and duration also participate as subsidiary parameters (Sugitou 1982; Koori 1989a, b; Azuma 1992).

In Spanish (Navarro-Tomás 1944; Sosa 1999; Face 2001, 2002; Estebas-Vilaplana 2007) and other Romance languages as well (Di Cristo 1998; Dahan and Bernard 1997) as well, focal prominence is produced primarily by varying fundamental frequency, while amplitude and durational prominence are used primarily for other purposes.

In short, each of the three languages investigated here permits us to measure and code this primary parameter for prominence (F_0) directly from the pitchtrack, as shown on the example in Figure 5.1, taken from the first Kennedy/Nixon debate.

2.2 Cognition and prosodic salience

Bolinger (1978) proposed that prosodically emphasizing critical semantic information is a cross-linguistic universal. Prosodic focal prominence

maximizes the ability of conversational partners to focus attention on information which is critical to mutual understanding (Cutler et al. 1997). The assumed motivation for such prosodic salience will be referred to here as the *Cognitive Prominence Principle*.

In addition, even within a single language dialects differ in their use of prosodic prominence (e.g., Beckman et al. 2002; Grabe et al 2002; Fagyal 2004; O'Rourke 2005; Thomas and Carter 2006; Mennen 2007; Estebas-Vilaplana 2007; Ladd et al 2009).

2.3 Sentential position and prosody

Syntactic position within a sentence influences prosodic options (Ladd 2008), and it is possible to manipulate focus by altering such positions (e.g., Ochs, Schegloff, Thompson 1996; Danieli et al. 2004; Coussé et al. 2004; Swerts and Wijk 2005, inter alia). The unmarked sentence contour in most languages permits an early prosodic peak with downstep narrowing the permissible F_0 range later in the sentence. Many studies have documented that critical information is more likely to be placed early in the sentence, and that material presented early in the sentence is most likely to be prosodically prominent (e.g., Cutler et al. 1997; Horne 2000; Jun 2005; Ladd 2008).

In theory, the closer the ***NEG*** is to the beginning of the sentence, the greater the range and manipulability of prosodic prominence, so a speaker's option to exploit the position of ***NEG*** to emphasize or neutralize its cognitive salience is relevant to the discussion. Discussion of variation of placement to manipulate prosodic prominence can be found in Horne (2000), Jun (2005) and Takano (2008).

In declarative sentences, the unmarked placement for negatives analyzed here—***NEG***—includes 'verbal-*no*' for Spanish, *not* for English, *nai* for Japanese: Spanish verbal-*no* occurs before the verb, near the beginning of the sentence; English *not* immediately follows the English 'AUX' verb, and precedes the main verb, while *nai* occurs near the end of the sentence (Takano 2008; Jun 2005).

Even given that there is a strong preference for the unmarked position, it is reasonable to assume that the likelihood of prominence in any given case is mediated by the ***NEG***'s unmarked position in the sentence.

Considering both production and perception studies, Cutler et al. (1997) conclude that "speakers seldom de-accent (critical) information, and if they do, this hinders listeners." They show that while a prominent syntactic position can be neutralized by the overriding significance of other words in the environment, focally informative words are unlikely to be reduced because

of their syntactic position. That is, words that carry critical information will be prosodically prominent even if their syntactic position would minimize prominence. Cutler et al.'s conclusion will be referred to as *Cutler's Corollary*. Note that studies which support the corollary claim have been carried out on both English (cf., op cit. and references therein) and French corpora (Benguerel 1970; Dahan and Bernard 1997). A large segment of this chapter is devoted to the analysis of ways in which negatives are either prosodically prominent (supporting that claim) or not (possibly refuting the claim).

Consequently, the relative importance of the *Cognitive Prominence Principle* and *Cutler's Corollary* with regard to actual ***NEG*** positions and prosody in each of these languages will be discussed further in Section 3.4.

2.4 *NEG* and prosody

The point of departure for studies of negation and prosody was developed in the work of Bolinger (1978), who claimed that cross-linguistically ***NEG*** will receive "negative prominence." We have taken that to mean prominence that would be represented in ToBI[4] transcription with L*, and which would have F_0 no higher than nearby prosodically neutral words; analyses to date do not support this claim.

O'Shaughnessy and Allen (1983) looked specifically at negatives as carriers of critical information. They elicited isolated sentences with negatives that carried information which 'focal prominence' is intended to highlight: they found that ***NEG*** were almost categorically prominent which they attributed to their conveying cognitively critical information. While O'Shaughnessy did not characterize this "prominence," the pitchtracks of the elicited sentences revealed that overwhelmingly the ***NEG*** were either rising, rise-fall or high level—all variations on the ToBI theme of H*, rather than the L* proposed by Bolinger (1978).

Subsequently, Hirschberg (1990, 1993) analyzed news reports read by WBUR radio announcers (http://www.ldc.upenn.edu/Catalog/CatalogEntry.jsp?catalogId=LDC96S3; henceforth "BUR"); the newscasters were re-reading National Public Radio stylized newscasts. Like O'Shaughnessy, she found that the vast majority of prominences on *NEG* were H*. More recent studies (Syrdal et al. 2001; Hirschberg 2000) present similar results; in fact, both English *not* tokens (Hirschberg 1990, 1993) and French *pas* tokens (Morel 1995; Jun 2005) are reported as consistently pitch-raised in read speech, as would be projected from the *Cognitive Prominence Principle*, although (contrary to *Cutler's Corollary*) French negatives inside relative clauses are not necessarily prominent in isolated read sentences (Jun 2005).

2.5 Social situation and prosodic salience

Sociolinguists have shown that vowel positions, consonant realizations, and even intonational contours vary with social situation (Labov 1972; Yaeger 1974; Yaeger-Dror 2001; Eckert and Rickford 2001; Tucker 2007). Social situation had initially been shown to influence intonation contours for quite stylized genres of English such as story-telling, sports reporting, and political or religious speeches, or direction-giving in a narrowly defined "game" setting. (See, for example, Levin, Schaeffer, and Snow 1982; Grosz and Sidner 1986; Liberman 1992; Nevalainen 1992; Blaauw 1995; Hirschberg and Nakatani 1996; Hirschberg 2000.) More recent studies have begun to look at less stylized interactive situations (e. .g, Bunnel and Idsardi 1996; IEEE 1997ff; Sagisaka et al. 1997; Chu-Carroll and Green 1998; COLING-ACL 1998ff), but the vast majority of prosodic studies are still carried out on de-contextualized, read sentences, or, at best, on newscasts, such as those in the "BUR" corpus discussed earlier. This study will contrast the results of analysis of newsbroadcast data with results of a study using conversational speech.

2.6 Social situation, prosody and *NEG*: *The Social Agreement Principle*

Both the *Cogntive Prominence Principle* and *Cutler's Corollary* claim that prominence is directly correlated with the importance of the information being conveyed; all the read negatives which have been analyzed acoustically support that claim. However, negatives must also be considered from another point of view. One situational variable quite important to their analysis is the distinction between informative and socially interactive situations (Yaeger-Dror 1985, 1996, 2002a; Yaeger-Dror et al. 2002). That distinction will be implicated in the study reported here.

We have already seen that both in isolated read sentences (O'Shaughnessy and Allen 1983) and in informative readings (Hirschberg 1990) ***NEG*** carry important information, and (therefore) are pitch prominent; however, conversation analysts have shown that "preference for agreement" characterizes the conversations they have analyzed (Schegloff, Jefferson, and Sacks 1977; Sacks 1992). We will refer to that claim here as the *Social Agreement Principle*; ***NEG*** should be prosodically reduced or deleted if they carry new information which might be inferred as disagreeing with—or nonsupportive of—an earlier speaker.

"Preference for agreement" is obviously irrelevant for newscasts, or even for read materials in general, but it is instructive to consider read dialogue: when one reads from books, the F_0 on ***NEG*** tokens is generally prominent in

descriptive passages but is significantly less likely to be prominent in dialogue (Yaeger Dror, Hall-Lew and Deckert 2002, 2003; Yaeger-Dror 1996, 2002a).

NEG are more likely to be prominent in adversarial situations, whether or not the information conveyed by the ***NEG*** is critical to the hearer's understanding of what is said: *NEG*-prominence is also preferred in talk shows with an adversarial stance (Hutchby 1996; Scott 2002; Kiesling and Paulston 2005; Englebretson 2007; Hedberg and Yaeger-Dror 2008), certain types of political interviews (Heritage 2002a, b), US courtroom interaction (but see Kurzon 2001), or televised political debates (Yaeger Dror 2002a; Yaeger-Dror et al. 2002, 2003; Takano 2008).[5] The *Social Agreement Principle* may also be abrogated (in some cultures at least) in highly informative situations like classroom interactions (e.g., Kakavá 2002) or in children's game playing (e.g., Goodwin, Goodwin, and Yaeger-Dror 2002; Goodwin 2006a, b, and citations therein).

On the other hand, percentages are low in actual conversations between friends, with the lowest prominence percentages in face-to-face friendly conversations (Yaeger-Dror 1985; Yaeger-Dror, Hall-Lew, and Deckert 2002). Similar results were found for French friendly conversations (Yaeger-Dror 2002a). In fact, while read news or descriptive passages have a high percentage of prominent negatives, only a very low percentage of "remedial"[6] negatives were prominent in either French or English face to face friendly conversations studied (Yaeger-Dror 1985, 2002a). Thus, there appears to be a direct correlation between H* prominence and an informative social situation and an inverse correlation between prominence and socially supportive situations, or even read dialogue that is intended to sound friendly.

Since negatives not only provide crucial cognitive information but also provide the key to the expression of social agreement (i.e., supportive turns) and disagreement (i.e., remedial turns), analysis of the prosodic realization of negatives provides interesting data for the comparison of the relative importance of the *Cognitive Prominence* and *Social Agreement Principles*.

2.7 Negatives and cultures of power and solidarity

Just as the *Cognitive Prominence Principle* is assumed to be a cognitive universal, conversation theorists initially assumed that rules such as the "preference for agreement" (Sacks 1992; Schegloff et al. 1977), referred to here as the *Social Agreement Principle*, are cultural quasi-universals. However, all cultures don't have the same expectations.

Brown and Gilman (1960) showed that even *Tu/Vous* (T/V) choice varies with both relative solidarity and the relative power of speakers and recipients, that the dominance of power or solidarity vector is societal rather than

linguistic**,** and that the vector preferred in a given culture may change over time. Just as they found that T/V usage can be correlated primarily with either a solidarity vector or a power vector, depending on whether choice of T or V is reciprocal or not, it is reasonable to hypothesize that prominent face-threatening negatives could possibly be used reciprocally in a solidarity-oriented society and nonreciprocally in a power-oriented society (Watts 2003; Mills 2003, 2004; Locher 2004). While this may be a critical factor in prosodic variation on ***NEG***, the conversations in the present corpus were chosen to permit the analysis of solidary intimate ***NEG*** usage and to minimize the importance of possible power differences between the corpora. In fact, the phone calls chosen for analysis exclude probable sources of asymmetry between the coparticipants. (That is, primarily conversations in which interlocutors were the same age, and sex were included.)

Brown and Levinson (1978) chose to emphasize the importance of face concerns, whether the cultural motivation for variation was solidarity or power-based. Like Brown and Gillman, they also presented strong evidence that there is a wide variation in face concerns in different cultures. Not only does the importance of power and solidarity vary, but the situations considered face-threatening vary radically as well, as found in the studies of Blum-Kulka, House, and Kasper (1989). Evidence has shown that interlocutors from different cultures don't request or apologize in the same way (or for the same "infringement" of a coparticipant's "face"), and we hope to show that they definitely don't disagree in the same way.

Wierzbicka (1994) describes Japanese culture as far more sensitive to the *Social Agreement Principle* and Polish culture as far less sensitive to it. On the other hand, even within Japanese culture, well-known for its norms of interpersonal harmony and collective unity, management of interpersonal conflict is more flexible than the cultural stereotype would suggest and therefore is also situation-dependent (Befu1980; Ishida 1984; Krauss, Rohlen, and Steinhoff 1984; Yamada 1992). Moreover, since power assymmetries are more important in Japanese culture than in Western Cultures (Wierzbicka 1994; Yamada 2002), the "powerful" member of a dyad appears to have the right to express disagreement more directly than speakers from more symmetrical cultures, while in relatively symmetrical interactions neither speaker has the same latitude for expressing disagreement directly (Yamada 1992, 2002).

Even within more similar cultures, different expectations for appropriateness can obtain. While the broadcast debate requires an adversarial stance in English, French political adversaries for the Prime Ministerial position (at least in the 1990s) were more likely to use a superficially less adversarial stance, which native speakers considered critical to a demeanor appropriate to

an aspirant for such a political position (Yaeger-Dror 2002a, b). On the other hand, situations which were initially limited to a single society appear to have become cross-cultural genres: e.g, the universality of television "culture" has led to the creation of a cross-cultural hyper-adversarial political "discussion" television genre (Yaeger-Dror 2002a, b).

2.8 Subcultures of power and solidarity

Tannen (1981, 2005), Schiffrin (1984), Maynard (1989), Goodwin and Goodwin (1995), Goodwin et al. (2002), and Jefferson (2002) have all shown the degree to which **sub**culture is also a relevant variable for remedial disagreement strategies or use of negatives even within the English-speaking world. Gumperz (1982), Licari and Stame (1990), Couper-Kuhlen (1992), Okamoto (1994), Song (1994), Ting-Toomey et al. (1991), Ambady, Jan Koo, and Rosenthal (1996), Pike and McKinney (1996), Holtgraves (1997), and Yaeger-Dror (2002b) all demonstrate that variation in disagreement strategies is even greater in cross-language, or cross-cultural comparisons.

For example, Tannen (1981, 1984/2005) and Schiffrin (1984) proposed that New Yorkers and Ashkenazi Philadelphians (respectively) are relatively less sensitive to the *Social Agreement Principle* than other Americans. Kakavá (2002) suggested that Greek Americans are also less sensitive to the *Social Agreement Principle*. Similarly, Applefield (1997), Carroll (1988) and Platt (1998) claim that Francophones from the Old World are less sensitive to the *Social Agreement Principle* than Americans (including New Yorkers).

However, while these studies present evidence for a sliding scale of face concerns, they all assume a cross-cultural consensus on a continuum from supportive to remedial turn stance.

One question which arises is to what extent can Spanish, Japanese and English negative prosody be regarded as a cultural, rather than purely linguistic, variable? To what extent can variation within a given language, but in different locales, be traced to subcultural variation which corresponds with the purported face concerns which can be independently verified, such as those which correspond with T/V usage patterns?

2.9 Negatives and stance within a situation

Labov and Fanshel (1977), Goffman (1981), Jacobs (2002) and Clayman (2002) have shown that within a given social setting turn stance may vary—with one

participant required to be guardedly neutral (the interviewer, the therapist, the mediator, or the moderator), while other participants are less constrained (the interviewee, the patient, the panel participant). To take a dramatic example, a debate participant may use adversarial stance (as debater), a neutral to supportive stance (as moderator), or even a pseudo-informative position (the rôle affected, for example, by Perot in the 1992 debates). Other interactional factors that influence turn stance have also been isolated (Goffman 1981; Schilling-Estes 1998; Suleiman, O'Connell and Kowal 2002.)

Clayman and Heritage (2002) ascertained that what is considered an appropriate turn stance may vary over a number of years even within a single society. They found that in the 1950s reportorial stance was deferential and supportive of US presidents during a news conference, but register expectations altered so radically during the Nixon years that the appropriate turn stance for a US reporter is now adversarial. They found that this change has not occurred in England, or at least not to the same degree.

Speaker stance should always be considered as a possible factor in any study of any interpersonal pragmatic and prosodic variation; however, since the phone calls chosen were supportive stance, while the news broadcasts analyzed were limited to purely informative monologues, stance was conflated with corpus, and need not be coded separately, so in the present study there are only two stances: supportive (since all conversations were friendly) and informative (in the newscasts). However, speaker stance should always be considered as a possible factor in any study of any interpersonal pragmatic and prosodic variation.

2.10 Interaction among these factor groups

This chapter will consider the relative importance of linguistic, cultural and interactive differences. While the cognitive factor (and the *Cognitive Prominence Principle*) and the interactive factor (and the *Social Agreement Principle*) have both been studied, it has not been possible to consider the degree to which language choice (and word position) can be isolated as a separate influence. The present study, with its focus on parallel recordings of variation in Spanish, English, and Japanese will hopefully permit such a comparative analysis. For example, one initial hypothesis will be that with the *NEG* in an early sentence position Spanish will permit higher prominence percentages than English or Japanese.

A second hypothesis is that with the greater emphasis on agreement in Japanese culture (Ambady et al. 1996; Yamada 1992; 2002) the prominence percentages will be consistently lowest in Japanese, both because of the default sentence position for–*nai,* and because of this cultural preference.

Given that there is a broad range of prosodic dialectal variation in English (e.g., Thomas and Carter 2006; Arvaniti 2007; Arvaniti and Garding 2007; Ladd et al. 2009), Japanese (e.g., Sugitou et al. 1997), and Spanish (e.g., Sosa 1999; Estebas-Vilaplana 2007) but no studies to date which allude to dialect-specific patterns for choosing "focal" prominence, we will assume—that while the specific contour used—or the lack of one—may vary in different dialect groups, any differences in occurrence of focal accent can be ascribed to socio-cultural rather than dialect factors. We will try to answer these questions: To what degree does language itself, and the default ***NEG*** position influence prominence options? To what degree do (sub)cultural variations in "preference for agreement" influence options? These questions will be addressed in the following section.

3. Research methodology

Section 2.1 discussed the acoustic software used to permit accurate sociophonetic analysis of prosodic prominence; such software is used by ToBI coders as well as sociophoneticians (Syrdal et al. 2001; Shattuck-Hufnagel, Veilleux and Brugos 2005). Section 2.2's review of the literature showed that negatives "should" be prosodically prominent, but subsequent sections reviewed evidence that social situation can counterbalance the *Cognitive Prominence Principle*. It seems clear that, at least in English, the social situation strongly influences whether negatives will be prominent, and we will address the hypotheses that speakers from certain social groups emphasize negatives more than those from other groups, and that different situations may be treated differently in different cultures. As already discussed, in order to address these questions, we will analyze data from "parallel corpora." That is, except for the variables to be considered in the analysis—in this case, language, culture and region—demographics, stance and footing of the speakers are held as constant as possible. While the intention is to present information on friendly conversations, in each language ***NEG*** from newscasts have been measured as well, to permit a baseline comparison of "informative" stance with the evidence from social interactions.

3.1 Corpus choice

It is always difficult to determine how much data is needed for an adequate sample for any sociophonetic study. One rule of thumb is that the more

variables to be compared, the greater the number of tokens needed to fill the cells. Another rule of thumb is that the more common the variable, the smaller the corpus needed to access sufficient tokens: e.g., analysis of a common consonant requires a much smaller corpus for the investigation of sufficient tokens than analysis of, say, a rarely used lexical item. In the present case, we are examining a discourse level phenomenon—"disagreement,", which varies radically with social situation and would rarely occur in classic "Interview Style", where the interviewer is trained to appear supportive, and not to voice opinions which might be disagreed with. We also have hypothesized that situational stance, turn footing, and demographic variables will influence the results significantly, so (at least for conversational corpora) we need a very large sample to provide sufficient information for inspection of these variables, while holding other factors steady. We have been quite fortunate to have access to cross-linguistic equivalent/parallel corpora of both newscasts and friendly conversations which provide sufficient data for comparative analysis of this discourse feature.

This chapter will analyze the phonetic realization of prominence in these two parallel corpora for the three language communities. For every social group studied to date we can now show that the *Cognitive Prominence Principle* is limited by the *Social Agreement Principle* and that, at a finer analytical level, subcultural social groups vary their prosodic behavior quite extensively, with social situation and turn-footing both critical to the prosodic choices made by the speakers. Table 5.1 presents the corpora to be analyzed for this study. The demographic groups which can be isolated are men vs. women, speakers from different dialect areas of the same language, and demographically similar speakers who live in different countries and speak different languages. Unfortunately, due to idiosyncrasies of the corpus, age is not one of the demographic factors which can be considered.

Table 5.1 Number of Speakers in Each Corpus

	News		CallFriend		CF Total
	Men	Women	Men	Women	
N English	6	3	8e[9]; 4nc; 4y; 2w	6e; 6nc; 4y;2w	36
S English	—	—	6a; 4s	6; 2s	18
Costeño Spanish	5	4	9		
Serrano Spanish	9	7	6	4	10
Tokyo Japanese	3	3	4	0	4
Sapporo Japanese	0	4	4		

The American English corpus was further divided into speakers from the rful- South (a),[7] those from formerly rless Southern regions (s), the NorthEast (e),[8] the West (w), the Inland North (nc), and—following the claims of Tannen (1981, 1984) and Schiffrin (1984)—speakers from a strongly Ashkenazy-Jewish background from Eastern Seaboard cities (y).

3.1.1 Informative corpus

The Linguistics Data Consortium (henceforth LDC: www.ldc.upenn.edu) has collected large samples of newscasts (N) in several languages. While the materials were initially collected for the National Institute of Standards and Technology's (henceforth NIST, formerly known as the Bureau of Standards) benchmark studies for speech recognition, obviously the informative nature of the genre provides a perfect "foil," or comparison, for conversational material. Analysis of the use of ***NEG*** in newscasts will permit us to see if "informative" tokens with no possible disagreement are primarily prominent as projected, and will allow us to compare the relative importance of the *Cognitive Prominence* and *Social Agreement Principle*s. Newscasts in Spanish (*Hub4*) and English (*English Broadcast News*) available from the LDC (and taped in the 1990s) will be compared with newscasts recorded directly from TV programs broadcast in Japan in 2002.

The demographics of the speakers in the News corpus are listed on the two left-hand columns of Table 5.2.

English: The 1996 Broadcast News Speech Corpus (LDC97S44/66/71) contains a total of 104 hours of broadcasts from radio networks with corresponding time aligned transcripts. We analyzed a cross-section of those read newscasts and all the news readers use the neutral *koiné* often referred to as "NPR (i.e., National Public Radio) English," although the analyzed data were gathered from ABC and NBC, not from NPR. For newsbroadcasts, with only informative stance, 100 ***NEG*** tokens were deemed sufficient.

Japanese: The Japanese broadcast news corpus contains a total of eight hours of nationally televised evening newscasts from NHK (Tokyo), TBS (Tokyo), and TV-Asahi (Tokyo) in 2002; all the newscasters are trained speakers of the Japanese broadcast *koiné* referred to as *kyootsuu-go* ("common language") or *hyoojun-go* ("standard language"). The first 161 tokens from these newscasts were then transcribed and analyzed by the second author's team.

Spanish: The *Hub4* corpus (LDC98S74) contains speech and aligned transcripts of 30 hours of broadcast newscasts from Televisa (Miami), Univisión (Mexico) and Voice of America (VOA) broadcasts to Latin America read by Mexican and "Miami" speakers of Spanish; the preferred international

broadcast standard for Latin American Spanish in the United States is Mexican (Ahrens 2004). Here again, the first 100 tokens were coded.

3.1.2 Conversational corpora

Previous studies (Labov 1972; Yaeger 1974; Yaeger-Dror 2001; Di Paolo and Faber 1990; Eckert and Rickford 2001; Tucker 2007) have consistently demonstrated that the more self-conscious speakers are, the less rule-governedtheir sociophonology is. If this is true for vowel or consonant phonology, which for most speakers only tangentially varies with "footing" and other situational factors, it is likely to be true for prosody, which is most susceptible to situational variation.

Luckily, several large parallel conversational corpora are available from LDC. To maximize comparability, we have chosen friendly conversations from several cultures, referred to on the LDC website as the "CallFriend" (CF) corpus; conversations in US English, Japanese and Latin American Spanish transcribed at the University of Arizona are available both through LDC and on the Talkbank website (www.talkbank.org/data/CA). The sound quality of all the conversations is quite good, and almost all conversations to date appear to be primarily "unmonitored"; that is, speakers appear unself-conscious about local variation and display minimal evidence of the accommodation to the coparticipant which is known to occur when the conversationalists are strangers to each other or the interview situation requires an external microphone. When there were obvious "power" asymmetries, a file was discarded from the present analysis. These phone calls permit the analysis of how specific variables are used in the same social situation—phone conversations between close friends—initiated by one of the conversational participants.

Speakers were solicited by the LDC to participate in this telephone speech collection effort via the internet and personal contacts, so all speakers were from similarly educated middle-class social backgrounds; this is confirmed by the level of education shown for speakers. There is a total of 60 calls for each call set (English/Southern, English NonSouthern—CF_NENG:LDC96S46; CF_SENG:LDC96S47; Spanish Coastal/Noncoastal—LDC96S57, CF_Sp:LDC96S58; also Hub5—LDC98S70/T27 and LDC98S70; Japanese—LDC96S53); each caller placed a telephone call via a toll-free robot operator maintained by the LDC to a callee of his or her choice. Recruits were given no guidelines concerning what they should talk about, but were told to call close friends. All participants knew that these calls would be recorded. Upon successful completion of the call, the caller was paid $20 (and given the

free long-distance telephone call). Documentation for each call includes home region, sex, age, education, callee area code, and the aligned transcript. As discussed earlier, to the best of our ability only phone calls between friends of the same sex, age and regional background were transcribed for analysis, and only transcribed calls were analyzed.

All conversations took place in the 1990s (as did all newscasts but those in Japanese). Almost all phone calls were between intimates and equals, but since the cultural underpinnings may influence the relative importance of the *Social Agreement Principle*, in light of the studies by Tannen (1981, 1984) and Schiffrin (1984) discussed previously, the dialect and region of all callers were carefully noted.

English: All calls between immediate family members were discarded, except in a few (2 Northern, 2 Southern) cases. For the moment, these four cross-generational conversations have not been isolated but are still included in the corpus under analysis. Each data set was run both without the cross-generational calls, and then with them. The only change in the results was that with the addition of the family calls, age became a significant factor, and the other factor groups became more significant but did not change.

Japanese: While power is assumed to be more significant as a variable in Japanese culture than in the US or Latin America, these conversations were chosen to be as free of hierarchy as possible. Within the Japanese language corpus, there was a confound since all the men transcribed were from the Kanto region (Eastern Japan, e.g., Tokyo), and were in their 20s, while all but one of the women were from Hokkaido and were in their 40s. As a result, it is unclear whether differences between conversations were due to speaker sex, to age grading, or to region.

Spanish: Conversations which met the criteria for this study were transcribed in their entirety and can be found online with the other CallFriend conversations (talkbank.org). This subcorpus required greater dialect "triage" than the others.—LDC coded speakers as "Caribbean" or "NonCaribbean" based on a rough estimate of dialect region. However, dialect region does not actually follow the the borders of countries, and we recoded speakers as "*Costeños*" ("Coastal")—"*Serranos*" ("Mountain") based on their dialect characteristics (Canfield 1963, 1981). Given that the *Costeño* cultural pattern is more socially symmetrical than the *Serrano* (Brown and Gillman 1960), this distinction is particularly important for discourse analysis. While all speakers in these calls reciprocally addressed each other with *tú*, the calls coded as *Serrano* were made between Mexicans, or Colombians from the Bogotá region (Canfield 1963/1981); most of the Venezuelans are coded as *Costeños* for the purposes of this analysis. Only one conversation was

analyzed from speakers who were not both from the same region and only one in which speaker-sex differed.

The columns on the right of Table 5.1 show the number of speakers in each cell.

3.1.3 Individual speaker variables

For the Varbrul Analysis, each speaker's unique code categorized him/her by sex (MFG),[9] age (by decade) and dialect/region (as specified before). Except for two men from the deep south, all speakers were middle class; as already noted, the canvassing strategy elicited calls from mostly computer-literate speakers, many with graduate degrees, and most telephone dyads were limited to those with identical demographics.

Except for the cross-generational calls discussed earlier, all dyads were symmetrical. To the analysts, even the exceptions appeared to be quite "solidary" and "reciprocal" (Brown and Gillman 1960).

As Tables 5.1 and 5.2 show, each speaker was also coded for situation, with the newscasters (N) isolated from casual conversationalists (CF). The number of *NEG* tokens analyzed and discussed here is found on Table 5.2, along with the number of tokens from situations which are alluded to in passing.[10] Note that there are fewer tokens for the Japanese CF corpus than for the others, not because the speakers use fewer of ***NEG*** tokens, but because fewer phone calls have been analyzed; the average number of tokens per speaker is not surprisingly low.

Table 5.2 Number of Tokens for Each Situation

SITUATION	SPANISH	JAPANESE	ENGLISH
News	100	161	100
Debate	—	287	530
SWB	—	—	505
CF	450	299	1626
Mean ***NEG*** tokens / CF speaker	22	37	34

3.2 Coding the dependent variable

Acoustic measurements of fundamental frequency, amplitude, and duration were used to determine the prosodic prominence of ***NEG*** tokens in each of the

three languages sampled. Table 5.3 provides the coding choices for the dependent variable, and Figure 5.1 provides a sample sentence. In the example, taken from the Kennedy-Nixon debates, we see that the first token of *not* is, indeed, prominent. The second ***NEG***—for which we see the coding—is nonprominent (N) albeit uncontracted (F[ull]), but the following word (*presume*) is prominent (R). Each token of ***NEG*** was displayed and the relevant parameters were analyzed and coded on the "VARBRUL" tier. The full transcript was also monitored carefully, since a larger context is needed to permit accurate analysis of what will be referred to in this chapter as the **footing** of each turn, which will be discussed in Section 3.6. The coding tier allowed all tokens to be coded as they were analyzed and permitted quick access to questionable tokens, with the coding, the sound file, and the pitchtrack all bound together in one file.[11] Table 5.3 presents this dependent variable and its coding.[12]

In each case at least two people were involved in the coding: the primary coder and the primary researcher for the corpus. Questions that arose were discussed among the coauthors to insure that coding would be as similar as possible for the three corpora. Pitchworks permits the coding tier to be exported into a file directly analyzable by Goldvarb (Sankoff, Tagliamonte, and Smith 2005).

English: The pitch accent of the ***NEG*** was determined with coding choices roughly parallel to the ToBI system (cf. Syrdal et al. 2001; Shattuck-Hufnagel et al. 2005) and with modifications necessitated by variation found in each language. As shown on the Table 5.3, tokens were later recoded into a binary system, with Prominence (+) being the Application of the rule. To compare the results with Hirschberg's (1990, 1993) and O'Shaughnessy's (O'Shaughnessy and Allen 1983), only variations on H* were considered as applications in the final English and Spanish studies, with L and v recoded with N and A as nonapplications (-), as shown on Table 5.3 in the "recode" column.

Japanese: The Japanese research group found that almost all the occurrences of prominent—*nai* -*NEG*—were realized as H*+L. L* and its permutations cannot occur in Japanese, so even if L*, or L*+H had been included as an application, it would not have changed the analysis. [13]

Table 5.3 presents the dependent variable as coded.

Spanish: Navarro-Tomás (1944), Sosa (1999), Face (2001, 2002) all agree that the narrower the focus, the higher the F_0 peak on a Spanish word. Beckman et al. (2005), Estebas (2006) and others have pointed out that, at least for reading intonation in isolated sentences, the preferred noncontrastive focus of Iberian Spanish is L*+H; that is, there is a low F_0 prominence on the accented syllable, with a rise late in that syllable or in subsequent syllables. This L*+H contour is much rarer in English and is not documented for other

languages studied to date, nor in the American Spanish dialects discussed by Navarro Tomás or those in the present corpus. However, even in Iberian Spanish, both narrow focus and cases where the focal word does not have subsequent unstressed syllables, H*, or at least L+H*, is much more likely to occur. In addition, there is some controversy over whether the pitch peak is on the accented syllable only or whether F_0 continues to rise til the end of the word. "The peak is on the stressed syllable when it is last, but after the stressed syllable when it is not final." (Face 2002)

While no previous prosodic studies of the use of ***NEG*** have been attempted for any Spanish-speaking corpus, since "*no*" is only one syllable long the type of rise on the target syllable should not vary with focus. The default assumption is that H* will be more likely to occur on a ***NEG*** than L* (although either prominence option would still be relevant for this study).

Table 5.3 Prosodic Variation: The Dependent Variable

ENG/S	RECODE	JAPAN[13]	SIGNIFICANCE	TOBI CORRELATE	COMMENT
N	-	N	Neutral	-	no amp. or F_0 prominence
A	-	A	Amplitude	L*	Louder, but no F_0 prominence
-		D	Duration	L*	Duration increase
H	+	—	High	H*	most common prominence
R	+	-	Rising	H+H*; L+H*; H*; %H	variations on H*
^	+	P	Rise+fall	H*+L; H*-L%	occurs frequently
F	+	-	Falling	H*+L; H*-L%	
L	-	—	Low	L*	Bolinger's "pick": rare
V	-	—	Fall-rise	L*+H	occurs more rarely

Only {NAL} are considered nonapplications in English and Spanish, but only N was considered a nonapplication for Japanese. Non-occurring options are designated "-" in the appropriate cell. All tokens were recoded as +A or -A.

3.3 Coding for morphology of negation

As the previous discussion shows, it is likely that prominence is morphosyntactically constrained in each of the languages under analysis.

English: Table 5.4e demonstrates that there are various ways to express negation in English, and the most common is referred to by Tottie (1991) as

"*Not*-negation." Because it is (by far) the most common form, only full or contracted *Not*- negation in full declarative sentences are analyzed here. (The reasons for limiting the analysis in this way are discussed in greater detail in Yaeger-Dror et al. 2002.) It is also true that the full form of *not*-negation and affixal negative forms are more frequent in writing and in informative interactions, so by only considering the most reducible form of negation, we are actually minimizing the degree to which situation influences the likelihood of ***NEG*** prominence. In the present study, then, the only morphological coding included is the distinction between contracted and full ***NEG***, while the rarer negation types will not be analyzed.

Table 5.4e Morphology

CODE	TOTTIE'S TERMINOLOGY	EXAMPLES	SAMPLE SENTENCES
F	*not-negation (NEG)	is not,	It is not really possible.
C	isn't, 's not	It isn't really possible.	
-	No-negation	nowhere, never, nothing,	I never did that!
-	Affixal negation	imperfect, irrespective, nonstop	I am incapable . . .
-	Conjunctive negation	but, however, in contrast,	But I talk a good game.

Tottie (1991) found *not*-negation to be the dominant form of negation in English. In this study, only Full and Contracted *not*-negatives in declarative sentences are coded for English; the other forms of negation are not.

Japanese: The morphology of Japanese ***NEG*** is more complicated than that for English or Spanish: The present study focuses only on the most common type, *nai* negation, with all the four subtypes of conjugations (following verbals, nominals, adjectives, and adjectival nouns) included, as found in Table 5.4j.

Negation involving *nai* is realized in two morphological structures: *nai* is cliticized to the verb as an auxiliary verb (e.g., *hanasu* "speak" /*hanasa-nai* "do not speak"; *iku* "go" /*ika-nai* "do not go"), or it is realized as an independent adjective preceded by nominals (e.g., *suru koto ga nai* "(I) do not have anything to do."), adjectives (e.g., *oishiku wa nai* "(It) is not delicious.") or adjectival nouns (e.g., *kirei de wa nai* "(It) is not pretty.") It can be assumed that the morphologically independent use of *nai* should be perceptually more salient than when it is cliticized. As in English, the clitic-***NEG*** is much more common: 74% of the tokens are "auxiliary-nai" in conversation. Moreover, just as in English, the other forms of negation become more common in preplanned-broadcast statements, the percentage rising from 26% in conversation to 37% in newscasts.

Analysis of reading passages or isolated sentences has demonstrated that *nai*'s position within the sentence influences the probability that it will receive focal prominence; prosodic prominence on *nai* is closely linked to syntactic dislocation (the movement of linguistic elements to the post-predicate position). Takano (2002, 2008) found that postposed elements supplant the unmarked position for *nai*, shifting it forward and creating a prosodic environment theoretically more favorable to pitch prominence on *nai*. However, as in English, the likelihood of occurrence of these more complex structures is low. Language specific constraints interact with communicative requirements of specific social situations. At the moment, although the verbal affix is most common and is similar to *NEG* in other languages, the small number of phone calls analyzed to date led us to code all *nai* for the analysis.

Table 5.4j Morphology: Japanese

Code	Grammatical	Form	Sample sentences	Gloss
X	Auxiliary Verb	Verbs + nai	Eigo wa hanasa-nai. English TOP speak-NEG	(I) do not speak English.
N	Nominal-	Nominals + nai	Suru koto ga nai do things SUB NEG	(I) do not have anything to do.
A	Adjective-	Adjectives + nai	Oishiku (wa) nai. delicious TOP NEG	(It) is not delicious.
D	Adjectival-noun-	Adjectival Nouns +nai	Kirei de wa nai. Pretty COP TOP NEG	(It) is not pretty.
-	Affixal negation	prefix hi-, hu-,	hi-kooshiki; hu-ben, etc.	Unofficial; etc.
-	Conjunct negation	Placed before nai	Zenzen okashiku nai.	(It's) not funny at all.

TOP = topic marker
SUB = subject marker
COP = copula

Spanish: Table 5.4s demonstrates that there are also various ways to express negation in Spanish. By far the most common is "*No*-Negation." Again because it is the most common form, the simplest, and most similar to the *NEG* form analyzed for English, we will analyze here only *No*-Negation in full declarative sentences, so no coding for morphology is needed for the Spanish corpus.

Table 5.4s Morphology

CODE	TOTTIE TERMINOLOGY	EXAMPLES	SAMPLE
-	no-negation (NEG)	No es	No es posible.
	n-negation	nada, nunca,	¡Nunca hizo eso!
	affixal negation	imperfecto, incapaz . . .	Soy incapaz . . .
	Conjunctive negation	Pero, aunque, en vez . . .	Pero te lo dije.

The morphology of Spanish is simpler than that for English, so no coding for morphology is required, since only "no-negation" is included in the analysis.

3.4 Coding for sentence position: End vs. Other

As already discussed in Section 2.3, ToBI analysis of readings in all three languages has found that pitch range tends to become narrower toward the end of the intonation phrase (Arvaniti 2007; Jun 2005; Ladd 2008; Pierrehumbert 1980; Sosa 1999); this is irrelevant if *Cutler's Corollary* prevails, but to the degree that prosody can be constrained by sentence position, it should allow total freedom for prominence on Spanish ***NEG***, a somewhat constrained freedom on English ***NEG***, and should constrain Japanese ***NEG*** most effectively.

Previous quantitative corpus studies support that claim: Yaeger-Dror (2002a), Banuazizi (2003) and Hedberg and Yaeger-Dror (2008) all found that sentential position influences the likelihood that a ***NEG*** token will be prominent in English; the study of Japanese has now shown sentential position to be a significant factor as well. In Spanish, of course, ***NEG*** cannot be sentence final except with one word utterances, which are not under discussion here, so sentence position (End vs. Other) is only coded for Japanese[14] and English.

3.5 Coding for environmental adjacent prominence

One of our initial hypotheses was that if a word adjacent to a ***NEG*** is prominent, prominence on the ***NEG*** itself will be less likely.

Unfortunately, while this is theoretically a reasonable hypothesis, reality is far more complicated (Yaeger-Dror 2002a): the analyst must consider not only the likelihood of prominence, but which side of the negative the prominence is on, whether both preceding and succeeding words are prominent and whether the prominent word upgrades or downgrades the force of the disagreement; these factors must then be supplemented by coding for the situation, stance and footing of the turn.

The segment shown on Figure 5.1 is a case in point:

(1) While we do *not* take the credit for it, I would not *presume* to . . . (K/N1: Richard Nixon, 1960.)[15]

Nixon does not say:

(1') I would ***not*** presume to but
(1) I would not pre***sume*** to

Given the fact that this variable was much more complicated than our first coding permitted, the issue will be discussed in a later publication. [16]

3.6 Interactive stance and footing

We showed, in Section 2.7 that each corpus was uniformly of a single **stance**, so there was no need to code for stance separately in this study. However, within each of the corpora, turn **footing** was found to vary significantly, and was coded as an independent variable. Table 5.5 shows the coding options relevant to the analysis here. There is a definite cultural preference for one or another footing in the different languages, or, to be more accurate, in the different societies, but some patterns are consistent. In radio news broadcasts all *NEG* are informative, while in the CallFriend conversations approximately a quarter of all tokens are used supportively by each group of speakers, confirming our initial assumption that the CallFriend conversations are fairly comparable as well.

For the conversations sampled, three turn footings appeared to be used in the same way by all the speakers and presented no coding problems: Supportive (S), Informative (I) and Remedial (R). All tokens were coded by one researcher and checked by another. Other coded options were created because of their importance within a given culture. For example, self-protective (P) tokens were initially incorporated into the coding scheme to facilitate analysis of our Japanese corpus. Once the factor was incorporated into the coding scheme, we found that the American political debaters frequently use a self-protective stance, as in sentence (2). Although its use was much more limited in the CallFriend data, where a conversationalist infers that the interlocutor disagrees with him/her, there may be a self-protective use of negation as in sentence (3), cited from the Switchboard (SWB) corpus.

(2) Now I *don't* wanna get into a debate with you all.—George Bush, Sr.

(3) I *don't* wanna deny them their rights!—SWB 2709n.[17]

Hedged, self-corrective or self protective tokens were coded, but in the runs reported here, these factors were discarded from the Goldvarb analysis. The analysis of these turn footings will be presented elsewhere, and only Supportive, Remedial, and Informative footings are included in the analysis reported here.

Table 5.5 Turn-Footings Coded in Study

CODE	RECODE	SIGNIFICANCE	SAMPLE SENTENCE	SOURCE
I	I	Informative	the surveillance system is not that sinister.	BUR News
S	S	Supportive	I agree, they don't write anything like they use'to.[18]	SWB 2281
R	R	Remedial	He simply doesn't know what he's talking about.	K/N
C	-	Self-Correct	I don't know- I don't know the immigration laws.	swb 2709
P	-	Self-Protect	Y'know, I don't wanna deny them their rights!	swb
H	-	Hedge	If I'm not mistaken . . .	All

Specific turn-footings coded in this study; after initial analyses, the final analysis discussed here includes only the first three footings, with the others excluded from the analysis.

Other independent factor groups were significant for one language or another. However, those significant as independent variables for at least two of the languages are those discussed here: Corpus/Situation/Stance (News, CallFriend), Footing (Supportive, Remedial, Informative) Morphology (Full, Cliticized), Sentence Position (End, Other), and speaker characteristics (gender, region).[19]

4. The analysis

Once all the tokens were coded, and those tokens not included in this analysis were discarded a Goldvarb statistical analysis (Sankoff et al. 2005) determined the degree to which one or another factor group influenced the likelihood of prominence. Table 5.6 displays those variables which the Goldvarb showed to be a significant influence on prosodic variation on *NEG* tokens, and which are discussed here. The Goldvarb weights are found on Table 5.7.

Table 5.6 Cross-Linguistic Comparison of Different Factor Groups: Aside from "Situation,", All Comparisons Are for CF Data

Factor Gp	Code	Spanish	Japanese	N. English	S. English
Situation[20]	N CF	N>CF	N>CF	N >CF	—
Position	End vs. o(ther)	—	o>E	o>E	o>E
Morphology cf. Table 5.4	Full/clitic	—	Vb>Adj	F>c	F>c
Footing cf. Table 5.5	SIR	ns	S>I>R	S>I>R	S>I>R
Sex	M F	F>M	M ~F°	F>M	F>M
Region[21]	(See Table 5.1)	Cos>Ser	Tok~Ho	W>nc>y>E	S>A

Table 5.7 Comparing Goldvarb Factor Weights for Applications (= *neg* prominence) Cross-Linguistically in the CF Calls That Have Been Analyzed

Factor Gp	Significance	Spanish	Japanese	English
Situation		-	N>CF .55>.38	
Morphology Cf. Tables 5.4ejs	Factor Wts	-	Vb>Adj .54>.38	-
Position End≠Other	Factor Wts.	-	.41<.64	.62>.48(S) .59>.49 (all)
Footing cf. Table 5.5	SIR Factor Wts	ns	S>I>R .93>.47>.44	.71>.52>.495 (S) .66>.50<.52 (all)
Sex	M/F Factor Wts	F>M .73>.25	M~F*	F>M>GayMen .59~.49>.26
Region[21]	Factor Wts	Cost>Ser .62>.27	Tok~Ho*	W>nc>S>y>E>A .62>.61>.53>.5>.47>.43

N.B.: Symbols and abbreviations as in Table 5.6.
* As in previous tables, there is a three way confound for Japanese CF speakers with age, sex, and region. There is, similarly, a confound for age in the CF conversations.

4.1 Situation

As seen on Tables 5.6 and 5.7, first the newscasts were run separately for each language group; newscast *neg* were pitch prominent greater than half

the time for both English and Spanish, although even in English prominence did not peak over 90% as it had for the isolated sentence readers (O'Shaughnessy and Allen 1983) or the news re-readers (Hirschberg 1990) discussed earlier. In English 78% of Newscast tokens were prominent, in Spanish 58%, and in Japanese 39% (Yaeger-Dror et al 2002, 2003, Takano 2008).

The different CallFriend corpora were run separately, and then the CallFriend and News subcorpora were run together (for the Japanese Corpus). Situation (News vs. CallFriend) is consistently significant across all corpora, but for the English and Spanish corpora we determined that it was inappropriate to run the two situations together.

With regard to footing, the newscasters' ***NEG*** were uniformly coded as Informative. All other results on the table are for CF calls.

4.2 Morphology

As implied in the discussion of morphology, we expected that full *not* tokens (coded as F on Table 5.4e) are overall significantly more likely to be prominent than contracted *not* (coded as C) in American English conversations; however, within the CF corpus, there were so few Full tokens in the CF declarative sentences that the factor group did not enter the CF-only regressions, and are not found on Table 5.7.

On the other hand, there is more variation within the Japanese CF calls: the Japanese cliticized-*nai* (i.e., auxiliary *nai* [coded as X on Table 5.4j]) are more likely to be prominent (.54) than the remaining morphologically independent "nai" (i.e., nominals, adjectives, adjectival nouns + "nai" [coded as N, A ,D respectively on Table 5.4j]) (.38). Further analysis shows that this distinction is noteworthy in "Informative" footing of *-nai*: the "cliticized" nai tends to receive more prominence (36%) than the "morphologically independent" *-nai* (21%). We infer that this systematic pattern is closely linked to the degree of perceptual saliency of the negative *-nai* in different morphological positions and the speaker's (perhaps tacit) intent to augment communicative efficiency in telephone conversations in which verbal signals are the only medium to rely on. Note that the same tendency is also observed in more information-laden registers such as news broadcast and political debates data as well (Takano 2008).

Given that—as shown on Table 5.4s—there are no morphological ***NEG*** variants considered in Spanish, morphology is irrelevant to the discussion of Spanish variation.

4.3 Sentence position

As we see on Table 5.7, in Japanese *NEG* is less likely to be prominent when it occurs within five morae of the end of a sentence (E), than in other (O) positions. This is consistent with expectations based on earlier studies. The opposite is true for French conversations and debates (Yaeger-Dror 2002a,b), English debate and MacLaughlin Group data (Yaeger-Dror 2002a, b; Hedberg and Yaeger 2008), and for these CF English conversations on Table 5.7 where sentence final *NEG* actually favors prominence (.59>.49).

Another factor related to sentence position cannot be ignored: Early in the chapter, we noted that while the three groups of speakers are differentiated by their cultures, language may be a significant factor as well: We know that prominence is more likely to occur early in a sentence, and that there are syntactic techniques available in each of these languages (albeit infrequently used) for "raising" an important element toward the beginning of a sentence. We suggested that to the degree that purely linguistic considerations are significant, the Spanish speakers (with *NEG* early in the sentence) should be much more likely to have a high percentage of prominence than the American speakers, while the Japanese speakers (with *NEG* most consistently at the end of the sentence) will have the lowest percentage. This is clearly not the case. It is now clear that the Spanish speakers, who cannot "hide" a disagreement at the end of a sentence, or by reducing it with cliticization, are actually far more likely to reduce the negatives than speakers who have more syntactic freedom.

When we look at the actual results for the speakers from these different groups, we find we are lucky to have the comparison-corpus of Newscasts, which show that the *Cognitive Prominence Principle* is not irrelevant to the Latin American speaker: Spanish Newsbroadcasts (58%) English Newsbroadcasts (78%) both out-emphasize Japanese (39%). However, cross-linguistic differences in CallFriend data contradict both initial hypotheses: the Hispanic conversationalists are by far the least likely to emphasize remedial negatives (4%), while the Japanese (29%) and Americans (31%) are more likely to do so, despite our preconceptions about culture or our expectation that sentential position would influence the likelihood of prominence occurring in remedial turns. Clearly, neither a purely linguistic nor a purely cultural hypothesis is viable, and further analysis is called for, preferably with a larger CF sample which would permit all data to be run with "language" as one of the factor groups.

We see that the language with least opportunity to "lower" a cognitively critical negative to a less prominent position (i.e., Spanish) most consistently disallows the negative to be emphasized prosodically in actual interactions, while the language which permits the most syntactic freedom (Japanese)

allows most prosodic freedom as well. It is also quite clear that the prosodic variation in all languages analyzed to date supports the *Cognitive Prominence Principle* in informative situations or sentence reading, but supports the *Social Agreement Principle* in interactive situations.

The analysis of prosodic variation appears to be a productive technique for determining distinctions among registers, both within and across cultures. The dissimilarities between cultures (even cultures that we would initially expect to be quite similar) are at least as great as the distinctions between different registers within a single culture. We had initially expected that confrontational registers—like political debates and readings of literary dialogue—would be quite different from polite social occasions—like the conversations-for-class-consumption between two friends. In fact, the polite registers used less pitch prominence than the confrontational registers in both cultures. However, the differences between the American and Spanish versions of News or CallFriend were as salient as the differences between the situations within each culture.

4.4 Footing

Table 5.7 shows that both English and Japanese conversationalists' supportive negatives (S) are significantly more likely to be prominent than those found in informative (I) or remedial (R) turns—with factor weights of .93>.47>.44 for Japanese Supportive>Informative>Remedial tokens, and .66>.50<.52, for English. This difference was not significant for the Spanish speakers, for whom there were so few prominent tokens that the difference between the footing of the different turns was not significant.[20]

Yaeger-Dror et al. (2002, 2003) and Takano (2008) both found that the reverse is the case for political debates—that is, the remedial negatives (R) are significantly more likely to be prominent than the Supportive ***NEG*** both in political debates (Yaeger-Dror et al. 2002, 2003; Takano 2008) and in political "discussion" programs (Hedberg and Yaeger-Dror 2008; Takano 2008). The Goldvarb results for debates are on Table 5.8, with Remedial tokens (R) favoring prominence more than either Informative (I) or Supportive (S) tokens.

Table 5.8 Factor Weights for **Footing** in Political Debates in English and Japanese

Factor Gp	Coding	Spanish	Japanese	English
cf. Table 5.5	SIR	-	(S) I<R	S<I<R
PD: Debate	Factor Wts	- .42<.55	.22<.46<.56	

4.5 Speaker characteristics

4.5.1 Male/Female

To our own amazement, Table 5.7 shows that women are significantly more likely to emphasize a remedial ***NEG*** than the men in both Spanish and English friendly conversations; the question is still open for Japanese conversations due to the confound with region, age, and sex discussed earlier. Surprisingly, if the hedges, self protective and self corrective tokens are included in the analysis, the significance is even more striking.

4.5.2 Region/ Class/ Ethnicity

Given the input from Tannen and others (Blum-Kulka et al 1989; DeFina, Schiffrin, and Bamberg 2003; Gumperz 1982; Kiesling and Paulston 2005; Liebscher and O'Cain 2009) who maintain that speakers of specific ethnic backgrounds or from specific regions are more (or less) likely to emphasize disagreements, and given the evidence that there are significant differences between the emphasis on ***NEG*** in different social groups (Goodwin et al. 2002; Jefferson 2002; Yaeger-Dror 2002a, b; Song 1994), one primary purpose in undertaking the present study was to determine relative ***NEG*** prominence of speakers from different regions.

While region is significant, the results for English are surprising: Californians and other Westerners (W) have the reputation of being laid back, nonconfrontational (Tannen 2005[1984]) and unlikely to disagree, while New Yorkers and Philadelphia Jews have a reputation for being adversarial as "a form of sociability" (Schiffrin 1984; Tannen 1981, 1984), but region and ethnicity are consistently significant in more complicated ways. When Northern and Southern calls are pooled, Table 5.7 shows that speakers from the West (W: .62) are most likely to emphasize remedial negatives, with Inland Northern speakers (nc: 61) coming in a close second. The Southerners from formerly rless areas (S: .51) and NY Jews (y: .50) were actually less likely to emphasize negatives; among the Northerners, other speakers from the Eastern Seaboard appear less likely to emphasize remedial negation (E: .47), while those from Appalachia (a: .43) are least likely to focus on disagreement.

Given the size of the corpus, doubtless, the factor weights would have been even stronger if 2 of the Eastern speakers had not been coded as Gay. Obviously, a larger sample of parallel conversations from these regional groups will allow a clearer picture to be drawn, but the pattern thus far certainly does not support a conjecture (based on the claims of Tannen (1981, 2005/1984)

and Schiffrin [1984]) that New Yorkers, and Ashkenazi Jews will emphasize remedial negatives more than other English speakers.

On the other hand, the fact that in the Spanish CF corpus *Costeño* speakers are more likely to emphasize remedial negations than *Serrano* speakers fits the local stereotypes and our expectations based on Brown and Gillman (1960). Our preliminary ongoing comparison of Kanto and Kansai disagreements from an expanded Japanese corpus also supports the local stereotype—that Kansai speakers are actually more likely to emphasize remedial ***NEG*** than Kanto speakers (Yaeger-Dror et al. 2009). More within language comparisons are underway.

5. Conclusions

The sociophonetic studies which can be carried out today with downloadable software could not have been carried out at home even a few years ago. Although the tools for prosodic analysis are still being refined, the present study shows that they are already adequate for an elaborate analysis of variation in prosodic strategies. We have the necessary software to process not just the concordances and statistical results needed for studies of large text corpora, but even digitized sound for analysis of large speech corpora. The LDC sound archives provide a plethora of corpora for comparative analysis of speakers from different regions and different cultures. The primary focus of this investigation was on the use of negatives as carriers of information and as carriers of remedial disagreement between coparticipants in an interaction. Such a study would not have been feasible at all before the recent advances in technology which have made it possible to store large corpora and to carry out acoustic and statistical analysis of such large corpora. Only these advances have made it possible to supersede the analyses made in the 1980s based on smaller corpora, which often were composed of isolated sentences (O'Shaughnessy and Allen 1983) or newscasts (Hirschberg 1990).

As we saw, speech analysts and cognitive scientists have maintained that negatives carry critical information, and therefore should be pitch prominent, but their data have been based on "informative" registers or read sentences. Our evidence confirms that purely informative negatives used in informative situations (like the read newscasts studied by Hirscherg 1990, 1993) are likely to be prominent, and therefore support the *Cognitive Prominence Principle* while conversational data contradicts this claim; nor can adversarial interactive data (like political debates or Crossfire-genre programs) be construed as supporting this principle: Not surprisingly, adversarial interactions reveal

that the *Social Agreement Principle* is likely to be inverted in this type of genre rather than merely neutralized.

Our results do not support the hypothesis that a language's default position for simple *NEG* has an influence on prosodic strategies (much less that it results from such strategies), but it does support a tentative conclusion that speakers from specific ethnic or regional backgrounds differ significantly from each other within each of the societies studied.

6. Where do we go from here*?*

The present study was initiated because the data from read sentences (so commonly used in phonetic analysis) differ radically from what was patently obvious from analysis of conversational interaction. Even today, many of those who create industrial applications for speech assume that reading style differs from, say, human-computer interaction or conversations between strangers in only minor ways. However, these researchers now need to project what people will say (and how they will say it) in an expanding array of different social situations. It is sociolinguists who have the expertise to collect and analyze data from a expanding pool of interactive settings in order to isolate the relevant variables for future analyses of speech.

6.1 Incorporating the social into sociophonetics

The issue of social situation is of particular interest in sociophonetic analysis of prosodic variation, particularly when, as in this case, the different societies are purported to have radically different ways of viewing the task being accomplished. Preliminary evidence has shown that native speakers of different languages do not have the same rules for emphasis on negation. One conclusion of Yaeger-Dror (2002) is that French speakers are perceived as confrontational by Americans partly because they do not reduce the prominence on negatives in informative turns, but only in remedial turns, while, as we see here, Americans reduce *NEG* in informative turns as well, if the social occasion itself is supportive. On the other hand, the French were much more sparing of prominence in political debate than the Americans. In the present instance, we find that Japanese and Spanish speakers are even more strongly influenced by the social setting than Americans.

Even in informative footing turns in friendly phone calls, the Spanish speakers almost never use prominence on the negative, although newscasters

use prominence more than half the time. Japanese speakers are much more carefully attuned to the situational footing than either the US or Latin American speakers and vary prominence with the footing much more radically.

Obviously, many opportunities for misunderstanding arise in intercultural communication and a more nuanced approach to foreign language teaching would doubtless have an effect not only on classroom presentation but on cross-cultural communication in general. It is clear that careful analysis of negation in different cultures will have an impact on language teaching, on how well people from different cultures communicate in the real world, and on how computer systems interpret speech, as well as on linguistic theory.

These studies will be useful not just for our own theoretical research, but for the applied fields of automatic speech recognition and synthesis, as well as for the pedagogy of foreign languages so that learners will sound more like actual conversationalists, and less like classroom drones.

6.2 Socio-theoretical ramifications.

Coupland (2001) isolates two types of register variation: One he refers to as "dialect style" and the other as "ways of speaking." He hypothesized that there is a clear distinction between those variables which are linguistic ("dialect style") and those which are influenced by cultural rules for interaction ("ways of speaking"). The use of negation is relevant to both and both must be taken into consideration to permit an adequate analysis of negation strategies, although the present study has considered only the importance of "ways of speaking" to this variation.

Coupland also suggests that both "dialect style" and "ways of speaking" vary relative to three goals: instrumental, identity, and relational. Further study will be needed to substantiate claims that variation in negation strategies occurs relative to each of these three "goals."

Notes

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2 In this chapter, the unmarked reference to Spanish or English will assume that American dialects are under discussion.

3 For example, the following programs are available either as freeware (e.g,, Praat: Boersma and Weenik 2006; Akustyk: Plichta 2006) or for a fee (e.g., Pitchworks: Tehrani 2006; Wavesurfer: Sjölander and Beskow 2006).

4 Syrdal et al. 2001, Shattuck-Hufnagel, Veilleux, and Brugos 2005, Jun 2006, and Fagyal and Yaeger-Dror forthcoming: all include recent discussions of ToBI and its categorization of pitch accents for English.

5 Bilmes (1997) presents evidence that interruptions are also more overt in debates; see also Hayashi (1996).

6 "Remedial" (Goffman 1971) is the cover term preferred here.

7 While a few of the speakers from the deep south were from a nonacademic background, their results have not been tallied for the present analysis.

8 New England, Rhode Island, New Jersey, etc.

9 Two of these "Eastern" speakers were Gay, and their conversation differed from others in the CF set; later these two men recoded "G."

10 We will refer to Political debates (PD) discussed in Yaeger-Dror et al. 2002, 2003. Panel discussions (PP) discussed in Yaeger-Dror et al. 2003, and in Hedberg and Yaeger-Dror 2008. The LDC Switchboard corpus (SWB) is discussed in Yaeger-Dror et al. 2003, and CallHome (CH) in Banuazizi 2002.

11 These tiers are all saved in one Pitchworks file (Tehrani 2006), but the same effect is achieved with Praat (Boersma and Weenik 2006), where tiers are saved as separate files.

12 To permit comparison with Bolinger (1978) the coding scheme also permitted an analysis using L* as an application value, but the low number of tokens coded with L* or L*+H obviated the need for such an analysis.

13 Japanese is a pitch accent language. The tonal pattern of a word is predictable based on the location of its lexical accent and the number of moras involved, though there is a great deal of dialectal variation. See Venditti (2005) and Jun (2005) for a detailed discussion of Japanese prosodic patterns. As with the English and Spanish data, tokens of A or D were very rare, providing further evidence

that Bolinger's claim (that cross-linguistically, the primary prominence type for negatives would be equivalent to ToBI L*) is untenable in any corpus analyzed to date. As far as possible, the same criteria were used for Japanese as for the other two languages.

14 In Japanese, "End" signifies less than 5 morae from the end of a sentence, while "Other" signifies more than 5 morae from the end.

15 Note that the first ***NEG*** token is prominent despite occurring inside a dependent clause, while the second cedes prominence to the adjacent verb.

16. For example, in the English conversational corpus, contrary to expectations, if the preceding word emphasizes the force of the negation and is prominent, then the likelihood of a prominent ***NEG*** is greatly reduced (with a Goldvarb weighting of .26), whereas if the emphasis follows the ***NEG*** the Goldvarb weighting is (.63), and with focus on both sides (.61) ***NEG*** prominence is significantly more likely to occur than when there is no environmental prominence (.56), so only a preceding emphasis disfavors application of the rule at least in English! This factor group is not included in the present discussion, but will be analyzed in a later publication.

17 If examples are cited without attribution, they are not found in the corpora. Those with attribution include data from CallFriend (CF . . .), from presidential debates (with the debater mentioned), from Switchboard (SWB), or CallHome (CH).

18 Some clearer examples of Supportive turns [but without ***NEG***] are cited here from Bravo 2009: The original citation is in Spanish, and the translations appear on pp.772f.

(3) —original, p763:
B: lo que tampoco queremos es ir de maratón porque entonces-
A: no no claro!
B: We don't want to do a marathon either, cause, then-
> A: No, no, of course not.

(12) —original p767:
A: . . . porque yo tengo el cuerpo to' etropea'o, sí yo no voy mal encaminá!
B: tú tienes el cuerpo estropeado?
A: oy que no!
B: tú flipas!
A: so that's what I need! [laser surgery] Because my body is totally trashed!
B: YOUR body trashed?
A: you bet!
> B: you're out of your mind!

That is, a turn can be marked as "supportive" if it is agreeing with a preceding negative, or even if it is disagreeing with a negative self-assessment by the interlocutor, and is therefore supportive rather than remedial in intent.

19 As shown on Table 5.2, to test the assumptions of Tannen (1984) and Schiffrin (1984)—"region" encompasses not just the dialect or cultural region, but ethnicity.

20 Other situations had also been analyzed in previous English and Japanese corpus studies and the results are of interest for comparison: US political "discussion" programs (such as Crossfire, MacLaughlin Group) have even higher *NEG* prominence percentages than political debates which have been analyzed (Kennedy/Nixon, Bush/Carter, Bush/Clinton/Perot—see further discussion in Yaeger-Dror et al. 2003)—(78%>55%)—and both are significantly more likely to use prominent *NEG* in remedial turns than nonadversarial conversations (Yaeger-Dror et al. 2003, Hedberg and Yaeger-Dror 2008, Takano 2008). Face-to-face interactions are not less likely to use prominent *NEG* than telephone interactions in Japanese (33%~29%-Takano 2008), but in most English Face to Face conversations studied the there is less prominence (Yaeger-Dror 1985) (3%<31%), even in face to face group therapy sessions there's less prominence (Yaeger-Dror 1985) (13%<31%), phone conversations between strangers (such as the Switchboard corpus (Yaeger-Dror et al. 2003)—13%<31%) or with immediate family members (as in the Call-Home corpus analyzed by Banuazizi 2003—13%<31%); these are all significantly less likely to use prominent *NEG* than the CallFriend calls studied here (Yaeger-Dror et al. 2003; Banuazizi 2003), as shown in the following table.

Overall prominence percentages of *NEG* in different corpora of English analyzed to date. Note that the News tokens are all informative, but in conversation the percentages are for remedial tokens.

Corpus	%	Reference
Hirschberg's BUR News	97	Hirschberg 1990, 1993
LDC News	78	Present paper
Political Panel Discussions	78	Hedberg and Yaeger-Dror 2008
Presidential debates	49–65	Yaeger-Dror et al. 2003
Group therapy session	13.3	Yaeger-Dror 1985
SWB	13	Yaeger-Dror et al. 2003
CH	13	Banuazizi 2003
CF	31	Present paper
Face to Face	2.5	Yaeger-Dror 1985, 2002

21 Note again that all **Japanese** men were from the *Kanto* (eastern Japan) region, here marked "Tok" for Tokyo, and all women were from **Ho**kkaido (3) or the *Kansai* (Western Japan) region (1). The 8 **Spanish** women are divided evenly between ***Cos***teño and ***Ser***rano, and the men were also almost evenly divided. Note that there were no Southern US English news readers, in our sample. Within the US North, the regions were roughly divided into West (=W), Inland North (=nc), East (=E), and Ashkenazy (=y), while Southern speakers, based on Feagin's work and the *ANAE*, are divided into those from formerly "rless" areas (=S) and those from fully "rful" areas (=A).

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